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ABSTRACT

For use by teachers in helping students become better writers, this booklet describes and illustrates cognitive mapping, a prewriting technique that helps students combine their verbal and visual skills in order to produce ideas and to plan stories, plays, reports, or essays. The first section of the booklet discusses the interrelations between writing and thinking and explains how mapping can help students recall, organize, and structure their ideas. The second section, which comprises the major portion of the booklet, (1) explains how to make a cognitive map; (2) demonstrates how mapping can integrate the functions of the two hemispheres of the brain; (3) compares mapping to outlining; (4) illustrates ways that it can be used in planning a letter, autobiography, story, oral composition, research paper, or play; (5) lists suggestions for other uses of mapping in writing instruction; and (6) presents maps of works by professional writers. (FL)

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Mapping the Writing Journey

by

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Preface

In this monograph, Marilyn Buckley and Owen Doyle describe, and illustrate with numerous examples from writers of many ages, the technique of cognitive mapping. This technique, combining both the verbal and visual abilities of the students, increases their flow of ideas and aids their planning of stories, plays, reports, or essays. Easily taught to students at any grade level and any ability level, mapping is an extremely valuable new tool for teachers to use to help students learn to write.

James Gray, *Director*
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Mapping and Thinking

MARILYN HANF BUCKLEY

From any perspective, writing is the most difficult language process. The demand that writing makes of logical thought and deliberate language provokes students—whether in elementary school or college—to moan as if inflicted with pain whenever the assignment is to write. Many otherwise active students experience a temporary paralysis of both mind and muscles when they are requested to confront a blank page. With pens poised in hands, ideas frozen and locked in place, anxieties increasing and rapidly diminishing their already small store of confidence, students—both bright and lackluster—protest to whoever will listen that they would rather be doing something else, anything else than writing. Well intended teachers who advise "Just get going" are, unfortunately, of little help because that is the very thing the students can not do. We hope, in the pages that follow, to offer some suggestions for helping students solve the problem of how to get going.

A prewriting technique many teachers have found useful is called *mapping*, a preparation—if you will—for the writing journey. Most students would agree that the success of a journey—be it a backpack trip in the Sierra mountains or a trip to Ashland, Oregon, for the Shakespeare festival—is determined, to a large extent, by the care or lack of care in planning. And so it is in writing. Even though mapping is helpful to all students, it is especially beneficial for those students who have never developed procedures or strategies for thinking through *what* they will write about and *how* they will go about it. The excessive energy that these students spend on initial decisions about organizing and beginning their writing leaves them with little vigor for the more important tasks of making meaning with groups of words. When applied, mapping provides students of all grades with a simple, relatively quick way of organizing an intellectual plan for their linguistic journey. Most students, we must admit, will never cease complaining about the difficult process of writing no matter what activities, techniques, or procedures are developed by talented teachers. Mapping, even though an exceptionally effective process of organizing ideas, will probably only soften the groans.

To write well is to think well. The interrelations between thought and language are readily observed whenever students' writings resemble a riot of ideas as in a verbal collage, with improvised and premature knots

of confusion intricately wandering through five paragraphs. Obviously the student's thinking is confused. No amount of noun and verb agreement or exercises in the sixteen uses of the comma will help. Problems resulting from disorder and nonsense are only ameliorated by the imposition of order and sense. The single reason why writing can make the exact man, as Bacon suggested, is that writing, if it is to be effective, depends upon that consistency of reasoning one finds in logical thinking. Most teachers know that controlled and limpid discourse comes from writers who are lucid and exacting in their thinking. Their real problem, most teachers admit, is *how* to guide students through their initial untidy tangles of confusing ideas to a level of writing which is clear and coherent. The technique of mapping helps in this pursuit in that it teaches the three most important thinking skills: recalling ideas, organizing ideas, and structuring ideas. If students use mapping, these three cognitive skills which are basic to writing can be readily practiced and to some degree perfected.

RECALLING IDEAS

Students do not write writing, they write ideas. The greater the quantity and diversity of ideas that students can choose from, the better. Before students can decide upon a thesis statement and select a particular audience, they need to bring to the surface of their memories all ideas associated with the topic. Working in small groups, students freely associate or brainstorm about the topic, producing a great quantity of words and phrases, some valuable, some not. Students are reminded that during free association, no judgment of worth or relevance is made. Emphasis is on divergent thinking, fluency of ideas, diversity and creativity. At first students need encouragement to have confidence that they know a lot about the topic and should resist early closure of brainstorming until the group's list is abundant with possibilities. So that everyone can quickly accumulate a plethora of ideas, each group shares with the class, inviting others to take freely from the list. It matters not which student generated the words; writing is difficult and everyone needs help and support from everyone else. Very early in their relations, the teacher proposes: language is the human experience. The more we can realize the range of possibilities in our language, the more we can develop our humanity. But development is difficult, and we owe one another an intense loyalty. The class is a community of scholars, collaborating with each other—raising questions, proposing answers, suggesting revisions or rewrites, encouraging others to take risks in language or discouraging another's empty, bombastic verbosity.

If students protest this initial step of brainstorming for ideas in small groups and sharing with one another, suggest that they compare writings done without these techniques with those done after using the techniques. By comparing the two products, many students will soon realize that if they do not remind themselves of what they know about the topic *before* writing is begun, they will probably not recollect those ideas during the

act of writing when the mind is preoccupied with whatever language task is at hand. The slow and many times tedious process of writing is out of touch with the swift racing of thoughts. If ideas are not to be lost, they need to be anchored down, made visible, available, and accessible to the writer. However, quantity of ideas, no matter how rich, is of little use unless the ideas are organized and categorized into groups and labeled.

ORGANIZING IDEAS

Any classroom of students can produce an overflowing list of ideas. But just as the students could not carry dozens of books without dropping all of them, they can not mentally carry dozens of ideas. The mind prefers order to chaos, clarity to confusion, and tidiness to disarray. When students arrange separate and discrete ideas into groups, patterns, or logical units, they create a system which is friendly to the way their memories work.

If students ask two questions—*which of these ideas go together?* and *what shall I call that group?*—they will translate their list of words into categories of meanings that complement the topic. Again, if students share in small groups and give and take from each other, they will have a greater range of possibilities for each student to choose from. A group of students is always wiser than an individual student. But even if the students all write the names of their categories on the chalkboard for everyone's potential use, the task of writing is not yet accomplished.

The students are now ready to move from a general topic to a specific thesis statement. By overviewing the categories and all the ideas connected with them, the students can each select one that they individually want to write about. At this stage the teacher guides each student to decide upon a thesis statement and the purpose of the writing and to establish a particular audience for the piece. Ideally students will then share their decisions in a small writing group to get some response from others regarding their choices.* Now the student is ready to brainstorm individually about his thesis, bringing out of his memory all related associations. This step is done easily and quickly because of the work done in the initial group brainstorming. As with all lists of diverse ideas, the student categorizes his own list. These categories establish the principal parts of the thesis. In many cases, the categories will become the separate paragraphs of the writing. Selecting categories and arranging them in a sequence will enable the students to then structure or map their ideas on their topics.

STRUCTURING IDEAS

On a blank piece of paper, the student draws a large geometric shape—

*For suggestions on using student response groups, see Mary K. Healy, *Using Student Writing Response Groups in the Classroom* (Bay Area Writing Project Curriculum Publication No. 12).

circle, square, and so forth—in a central position for the thesis. Extending from the center are as many lines as there are categories. Branching from the categories are several levels of smaller lines which represent the supporting details. It is best to use one sheet of paper so that the student can intellectually appreciate a comprehensive overview of the journey about to be taken.

Being able to see at a glance how her writing will begin, develop, and conclude enables the student to visualize the whole with all its related parts. Students gain a sense of confidence and control when they complete a comprehensive map. Every idea has its place and every place is indicated on the map. Some students think of mapping as an advance organizer; others say that the map is their ideational scaffolding. Whether organizer or scaffolding, the map helps the student to do what every text on writing advises: organize ideas.

It is not only the student who gains from mapping; the teacher does also. As students map, the teacher can move around the room and can *see* the students' proposed structures of ideas, the previews of events to come. At this prewriting stage the teacher can question, advise, share ideas, and applaud the students' designs. Readily visible are the students' decisions—the thesis statements, their main categories, the supporting details for each category in hierarchical order, and the sequence progressing from beginning to end. Usually the teacher has to wait until the writing is turned in before she can be a thoughtful listener or interested reader. Map making as a prewriting process provides the student with opportunities for dialogue with the teacher or another student. The map, a graphic, schematic arrangement of ideas, can be shared with other students in the writing group, providing an opportunity for the authors to explicate their proposed plans. As teachers well know, the more thinking and talking before writing, the better the chances for writing to flow gracefully from central to subordinate details, clearly establishing the substance and the sense of the composition for its readers.

The technique of mapping can be grasped in a single lesson. Students need only to respect a few principles: a map is visual, one can easily *see* the development of ideas; the ideas flow from main or primary ideas to secondary which in turn branch out into tertiary ideas and so forth; each idea has a place and is related to and interrelated with the whole. Each map is unique, shaped and structured by its author. No two maps in a class are alike because no two students think alike and mapping is a process of thinking. Once students and teachers engage in mapping they become curious about its rationale and ask, why does mapping work?

RATIONALE

To map is to engage in a thinking process involving two types of symbolic expression: *presentational* or non-language expression such as art,

and *discursive* or language expression.* As human beings our unique, distinguishing attribute is our extraordinary innate ability to translate experiences symbolically. The philosophy of symbolism began with Kant and was developed by Cassirer, but it was Suzanne K. Langer who skillfully explained, in *Philosophy In A New Key*, why our most primary instincts direct us to make meaning through symbolism. Our natural, innate propensity to symbolize provokes us to dance for joy and for rain; to decorate walls, caves, and clay water jugs; to design skyscrapers and coats of arms; to weave blankets and baskets; to compose etudes, symphonies, and rock songs; and to write epics, love sonnets, essays, and stories. Symbol making is the definitive human activity. It is not only the way we think; it *is* our thinking. Even casual introspection will reveal to us that no aspect of our lives is exempt from symbolizing. After a day of continuously sending and receiving symbolic communication in work and social affairs, we toss our weary bodies onto our beds at night, only to engage in a riotous show of symbols in our dreams.

Dreaming is presentational as is the visual aspect of mapping. While engaged in mapping, students become artists and make pictures of their ideas; they illustrate, so to speak, their ideational intentions. Most students, particularly in secondary schools, are seldom invited to exercise their powerful and creative visual intelligence. To see is to think visually. The visual image is as much a thought as is the verbal image. In the preface (p. *v*) to *Visual Thinking*, Arnheim writes that "artistic activity is a form of reasoning" and the "truly productive thinking in whatever area of cognition takes place in the realm of imagery." It is interesting to note that our creative thinking is called "image" and "tion" or *imagination* and that when we truly understand we often say "I see" or "I see what you mean." If our mental roots are in the image, this may explain the speed and delight with which students learn mapping.

In mapping, students can be thoughtful architects of their own intellectual blueprints. Even though it is presently fashionable to speak of the right hemisphere of the brain as the seat of spatial, sensory, wholistic thinking ability (Ornstein, 1972, Rico and Claggett, 1980), we do not need to be current to validate our proposal. The visual image has always been a powerful and persuasive means of communication and, of course, historically was the prerequisite for writing. The tale of cave paintings, hieroglyphics and cuneiform "picture writing" as the portent of writing is a tale told many times. Young children intuitively begin scribbling ideas and drawing messages as their own self-imposed readiness to formal writing. Berger, in *Ways of Seeing* (p. 7), comments: "Seeing comes before words. The child looks and recognizes before it can speak." If we respect developmental theories of intelligence, then students should first *see* their compositions and use this visual production as a foundation and

*See M. Buckley Hanf, "Mapping: A Technique for Translating Reading Into Thinking," *Journal of Reading*, January, 1971, p. 225.

a guide to saying and writing compositions. Many benefits accompany visual thinking: the student can see, for example, the whole as well as all its parts as one perceptual unit of thought. Apprehending the whole or the *gestalt* contrasts with verbal intelligence, which is lineal. Ornstein proposes that lineal or verbal intelligence is only one type of thinking. He writes:

> The lineal sequence of events is our own personal, cultural and scientific construction. It is certainly convenient, and is perhaps necessary for biological survival and the development of a complex technological society—but it is only one of the many possible constructions available to men (p. 220).

By presenting the *gestalt*, the map presents, through its branching, an intellectual progression of major and minor ideas complete with relations and interrelations among the many parts. Also visible in the map is the sequence of events proceeding from beginning through development to conclusion. Another impressive attribute of the map is that the picture is easy to hold in memory and equally as facile to retrieve.

Conquest over memory has preoccupied philosophers throughout all ages, as Yates tells us in *The Art of Memory*. The picture has better staying power than the word, but both images need a structure or a pattern to connect the discrete bits of details. Descartes advocated connecting images with one new image that united all. Descartes' "new image" is the visual structure of the map. If a student can recall the primary categories of the map, all details within these categories—a complex array of details—will be retrievable without mental burden along with the categories. All the details of the categories "ride free" by attaching themselves to a larger unit. Bruner, in *The Process of Education*, writes: "Perhaps the most basic thing that can be said about human memory, after a century of research, is that unless detail is placed in a structured pattern, it is easily forgotten." (p. 116) Ease of understanding and ease of remembering are among the many benefits of mapping which help explain its extraordinary effectiveness as a presentational symbolic activity. The map, however, is also verbal, and presents the students with all the advantages of the discursive or language symbols.

DISCURSIVE SYMBOLS

In mapping, the mnemonic power of the visual is reinforced by the verbal labels signaling each category. That is, the label or name acts as a category which orders, regulates and pulls together similar associations. It is the label that triggers the mind to recall all the details subsumed in the category. Miller, in "Information and Memory," explains this principle:

> Our memories are limited by the number of units of symbols we

> must master, and not by the amount of information that these symbols represent. Thus, it is helpful to organize the material intelligently before we try to memorize it. The process of organization enables us to package the same total amount of information into far fewer symbols, and so ease the task of remembering (p. 549).

Packaging information, to use Miller's term, is a feature of organizing. But there is more to writing than organizing. For example, there is the role of oral language.

When a student writes, he is talking to himself. How well he can control his inner speech to say in an efficacious manner what he intends to say is dependent to a great extent on how well he uses oral language. Oral language is the powerful prerequisite to written language as Loban's and others' research substantiates. Frequent and consistent practice in oral language, including expressive, narrative, and transactional, is the best preparation for fluent written language. In "A Guide to Developing an Oral Language Curriculum," I suggest a sequence of four steps: brainstorm to generate ideas, categorize and order ideas, draw a map and structure ideas in an effective sequence, and talk out the composition. It helps many students to see *in detail* the composition before or after the talking out. Getting a good fit between visual and verbal images usually results in vivid, strikingly clear writing. If students use their maps to guide them, they can practice visualizing—in meticulous detail—their compositions. Their objective is to produce a discourse replete with striking, vivid details of characters, actions and settings. After these visual productions, students—again using their maps as guides—talk out their compositions, attempting to find intense verbal images to match their visual ones. The oral composition is told to a partner who listens and responds. Because oral language is rapid in comparison with writing, students can quickly gain a sense of where they are going in their verbal thinking and how well their language is performing. John Cheever comments, in the preface to *The Stories of John Cheever:* "My favorite stories are those that were written in less than a week and that were *often composed aloud*" (p. x, emphasis added). Imaginative instruction in using oral language effectively will do more to improve writing than grammar books will ever do. If students can orally tell a tale or persuade or describe an event or argue a proposition, then there is some hope that they will put up a good intellectual fight when they confront the most difficult process of language—writing.

In summary, a process called mapping is an agreeable way to encourage students to organize their thinking. This graphic scheme—mapping—is both visual and verbal and hence has all the advantages of those two symbolic modes: the presentational and the discursive. In Part II below, Owen Boyle discusses in detail many types of maps and uses of mapping in written composition.

II

Mapping and Composing

OWEN BOYLE

WHAT IS A MAP?

A map is a graphic representation of a written or oral composition including only key words. Using a map, students organize ideas; produce and receive information; and think, imagine, and create a product uniquely their own. Mapping aids composing and comprehending because it teaches students to differentiate among primary, secondary, and tertiary ideas; it is a simple and useful procedure for organizing speaking, writing, listening, and reading activities.

When students make maps of books, essays, or lectures they discover that the process makes the work accessible to them for long periods because retention becomes easier. Mapping can precede and improve oral discussions which are important in preparation for writing. Because I believe the language arts must be integrated, this paper illustrates ways to use mapping in speaking, listening, and reading as well as writing, but the emphasis is on writing.

Mapping and the Brain

An argument can be made for teaching mapping because the process seems to integrate functions of both hemispheres of the brain. Recent research on the right and left hemispheres of the brain suggests that these two hemispheres process information differently.*

The simplistic model in Figure 1 below generalizes from a complex field of research. Because this research is in its infancy, teachers should be cautious when they make generalizations based on studies of the two hemispheres. Generalizations sometimes made from recent brain research are that the left hemisphere is intellectual, analytic, linear, verbal and sequential, and that the right hemisphere is intuitive, synthetic, holistic, nonverbal and spatial. James Morrow cites Theodor Roszac in warning of the risk of overgeneralizing:

*Because the Bay Area Writing Project publication *Balancing the Hemispheres: Brain Research and the Teaching of Writing* discusses this research and its implications for teachers in detail, I will give just a brief summation of some of the information.

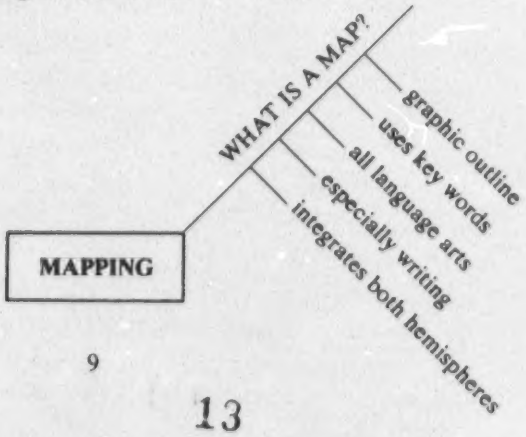
It's a staggering—and not automatically warranted—leap from the right hemisphere's documented visual-spatial talents to assertions about the locus of art, metaphor, holistic insight and intuition (Morrow, p. 75).

LEFT	RIGHT
Analytic	Synthetic
Linear	Holistic
Verbal	Nonverbal
Sequential	Simultaneous
Intellectual	Intuitive

Figure 1
Research on the Processing Roles of the Left and Right Hemispheres of the Brain

Some teachers have related brain research to the learning modalities of students, stating that some students have a predominantly left-hemisphere learning style and some have a predominantly right-hemisphere style. The theory is that the student who learns best in left-hemisphere modes will usually process information sequentially and analytically, while the right-hemisphere learner will process information holistically by synthesizing. It is too early to know how helpful this view of human learning will ultimately prove to be, but we do know that humans learn in varying and complicated ways and that teachers need to use as many techniques as possible to reach all students. It may be that there really aren't as many *slow* learners in our classrooms as there are *different* learners. Teachers who use mapping for the first time will discover students writing copiously who were previously unable to generate more than a few words. This power of mapping, as Marilyn Buckley pointed out in part I, comes from combining the visual with the verbal.

Review:



ADVANTAGES OF MAPPING

Many students begin with linear maps, then learn to use other non-linear maps to show relationships between ideas and/or characters, including mandala maps and mobile maps. The following pages contrast these kinds of maps with a section from a traditional outline.

READING INSTRUCTION TECHNIQUES

I. Word Recognition
   A. Context Analysis
   B. Sight Words
   C. Phonic Analysis
      1. Consonants
         a. Single
         b. Blend
         c. Digraph
         d. Silent
      2. Vowels
         a. Single
         b. Digraph
         c. Diphthong
   D. Structural Analysis
II. Comprehension Techniques
   A. Locating information
   B. Remembering
   C. Organizing
   D. Predicting and Extending
   E. Evaluating
III. Fluency
   A. Oral
   B. Silent

Figure 2
A Portion of a Traditional Topic Outline

A topic outline such as Figure 2 above is the simplest kind of outline. Even so, learning how to make such an outline is difficult. Here is only a part of the instructions from a book on writing:

> Main divisions of an outline are designated with Roman numerals (I, II, III...), secondary divisions with capital letters (A, B...), subdivisions under these with Arabic numerals (1, 2, 3...), and still further subdivisions with small letters (a, b, c...). Each sub-

division is indented further. Never have one division or subdivision without a corresponding one; i.e., never use a *I* without a *II*, an *A* without a *B*, a *1* without a *2*, an *a* without a *b*. You may, however, have subdivisions under one major division and not another. You may also, of course, have more than two divisions or subdivisions.

Many students struggle with this form for weeks or months while they might have learned mapping in a day; several of the sample maps that follow are the first attempts by students whose ages range from seven to sixteen years. Mapping is easy to learn and helps students see the relationships between characters, setting, and ideas in stories they have read; and because they can see these relationships, they are better prepared to write about them. Seeing the whole structure of an essay or story gives students a new power in their writing; students who simply paraphrased stories or essays in the past begin to write about ideas they cull from their maps. Elementary students use maps to aid learning in all the language arts; college students use them to prepare for written and oral exams; professional authors such as Douglas Hofstadter *(Gödel, Escher, Bach)* and Tony Buzan *(Use Both Sides of Your Brain)* use maps to plan their books (see pp. 26-27). College professors use maps to help teach writing and reading. Teachers of deaf students use maps because they are visual.

APPROACHES TO READING INSTRUCTION

APPROACHES	STUDENT ASSESSMENT	INSTRUCTIONAL PATTERNS	INSTRUCTIONAL TECHNIQUES
BASAL READER	EXPERIENTIAL BACKGROUND	INDIVIDUALIZED INSTRUCTION	WORD IDENTIFICATION
INDIVIDUALIZED	LANGUAGE	LEARNING STATIONS	SOUND-SYMBOL RELATIONSHIPS
LANGUAGE EXPERIENCE	ATTITUDES	SMALL GROUPS	STRUCTURAL ANALYSIS
LINGUISTIC	INTERESTS	TEAM LEARNING	CONTEXT CLUES
LITERATURE	MOTOR-SENSORY ABILITIES	WHOLE-CLASS INSTRUCTION	COMPREHENSION
PHONICS	SPECIFIC READING ABILITIES		
THEME			

Figure 3
A Linear Map

A first step away from a topic outline is a linear map (Figure 3) which really is just an outline without indentation and numbering. Students may want to do a linear map before exploring the other possibilities of mapping, but they should recognize its inability to show the interrelationship of ideas.

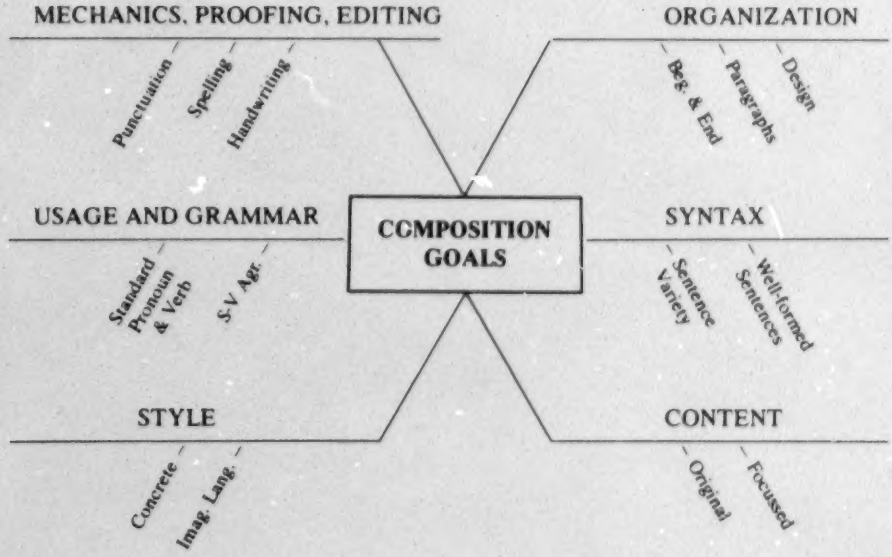


Figure 4
A Non-Linear Map

The map in Figure 4 breaks away from the linear approach. Students who map their thinking in this way find it easy to retain and review pertinent information, and they find that, when planning an essay, they can start with a simple map which grows organically as they make discoveries about their thinking.

Below and throughout the book are examples of maps which represent first attempts by students. These maps were selected for the wide range in ability and age of their authors, and they illustrate how easy it is for students with varying abilities to learn mapping.

The map in Figure 5 below illustrates a seven-year-old girl's first attempt at making a map for composing. The map was planned orally; first the teacher illustrated how maps work by mapping a sample letter, then the girl and the teacher talked about what the girl wanted to say to her grandfather and grandmother. The teacher made a few suggestions, but the map was formed and written by the student. The girl used the map to start her writing; as she made discoveries about her subject she enlarged her map. The map aided her in fluency, helped her make discoveries about her subject, and facilitated form.

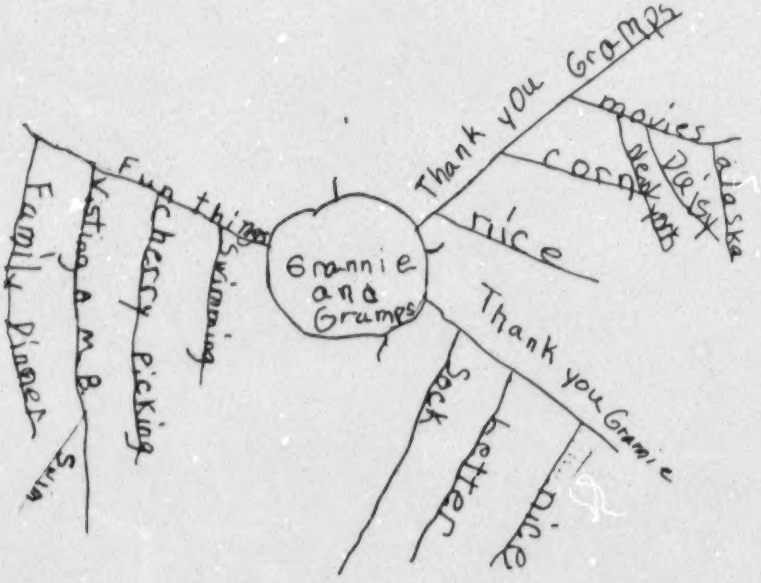


Figure 5
Map for a Letter by a Seven-Year-Old

Dear Grannie & Gramps

Thank you for writing me that letter. Thank you for being sonice to me while we were visting you. My mom figured that you would send my sock because she could'nt find it before we left. Could you call Antie Lowie and tell her that ~~that~~ the pictures are on there way. Gramps It was fun planting the corn with you. I engoyed your moveis

Figure 6
Letter Based on the Preceding Map

In *Writing Lessons That Work* W. R. Hudson explains what mapping did for one of his beginning writers in intermediate school:

> The work below is by a student who tested out in the lowest percentiles. He was in my class the previous year and he did not do at all well. At no time did he ever write over three lines, and those lines were often incomprehensible.

Figure 7 below is the student's map. It is followed by the five-paragraph essay he composed based on the map.

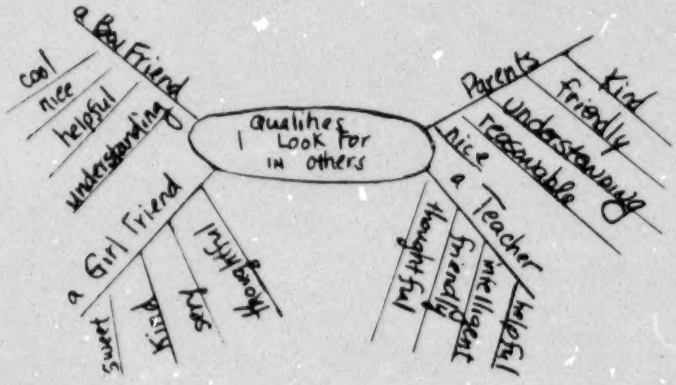


Figure 7

> What qualities do I look for in a iadeax person. Like a girl friend and Boy as a friend and a parent and a teacher.
>
> in a girl friend sweet and kind and sexy and thoughtful and loveaby she love all things and she is helpful and theses things I look from a girl friend.
>
> in a parent kind and friendly and understanding reasonable and nice these are the thing I look from a parent.
>
> in a boy as a friend cool and nice and helpful and understanding these are thing that I look froma boy as a friend.
>
> in a teacher I think that they could be helpful and intelligent and friendly and thoughtful that what I look from a teacher

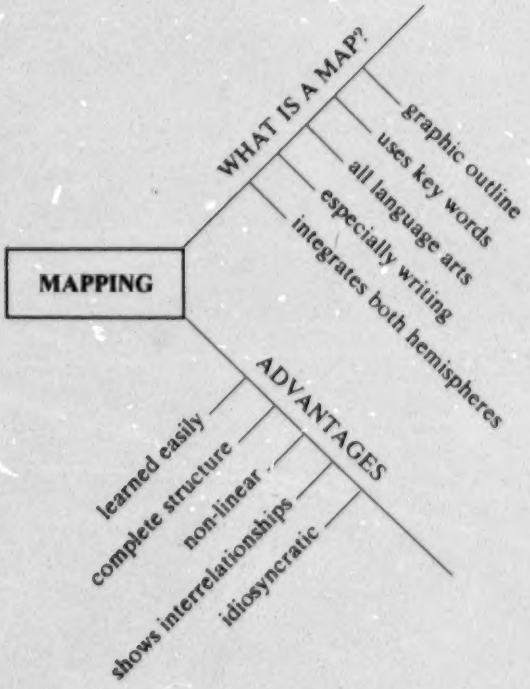
Mapping vs. Outlining

Mapping can be a prewriting, revising, or postwriting activity assisting students in organizing, composing, and evaluating compositions. Mapping has six advantages over outlining:

- Mapping is easy to share.
- Mapping illustrates relationships.
- Mapping presents a whole structure.
- Mapping is personal and idiosyncratic.
- Mapping is easily learned.
- Mapping moves students from fluency to form.

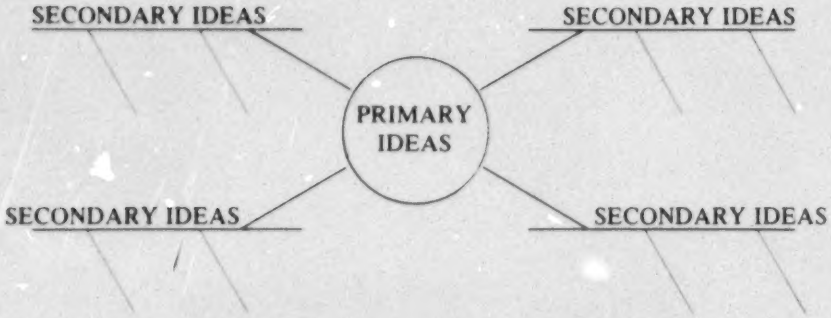
Mapping adds a visual dimension to our students' linear thinking; through using this visual method, combined with their verbal abilities, students gain a power greater than the sum of the two parts.

Review:



HOW TO MAKE A MAP

To help students get away from linear mapping it might be useful in the early stages of instruction to have them think of a map as looking like a spider. The body contains the main idea, the legs the secondary ideas and so on. The map below illustrates this approach. Later students will find this form too restrictive and will develop maps shaped like trees, baseball caps, or elephants, depending on their topics.



When introducing mapping to students it helps to let them take a common topic such as *sports* or *soap* and generate as many words as possible relating to this key word. Next, they take their generated words and organize them into categories. These words are ready to be placed into a map with the topic in the center, categories on the legs, and key words attached to each category. Now students are ready to write. The map will help them write with an ease they haven't known before.

Mapping For An Autobiography

A useful first assignment to familiarize students with mapping is to have them make a map to plan the writing of an autobiography. Using a known

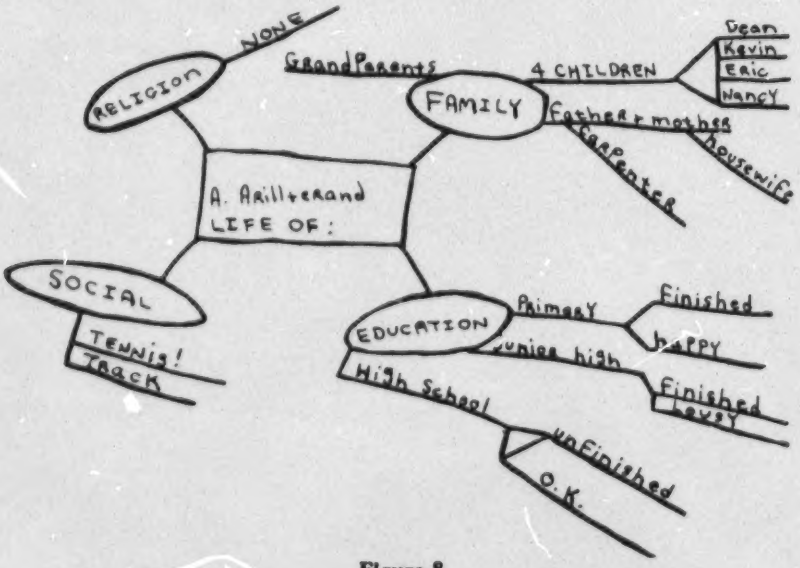


Figure 8
Map for an Autobiography

subject fa ilitates their mapping. Students place a controlling idea in the center of their map and use brainstorming techniques until they have many childhood memories for their paper. They select their "best" incidents for the map, with the central idea in the middle and supporting incidents or ideas on the extensions. The teacher lets the students know that as they make new discoveries they may add to or delete from their maps.

When students complete their maps, they tell their stories to a group or a partner; students should have opportunities to relate their stories orally before they write. While a student tells his story, listeners map it to give information to the speaker so he can reevaluate his organization. Figures 8 and 9 are maps representing the first efforts of two high school students. One is more creative than the other, but each follows the rules of mapping to make an autobiographical map which is unique.

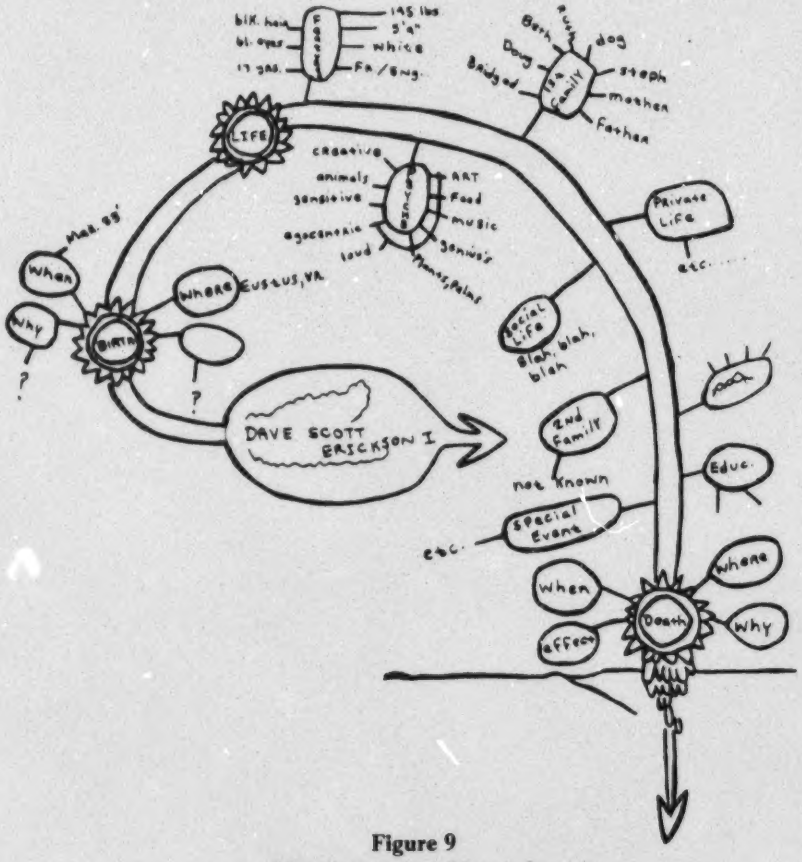
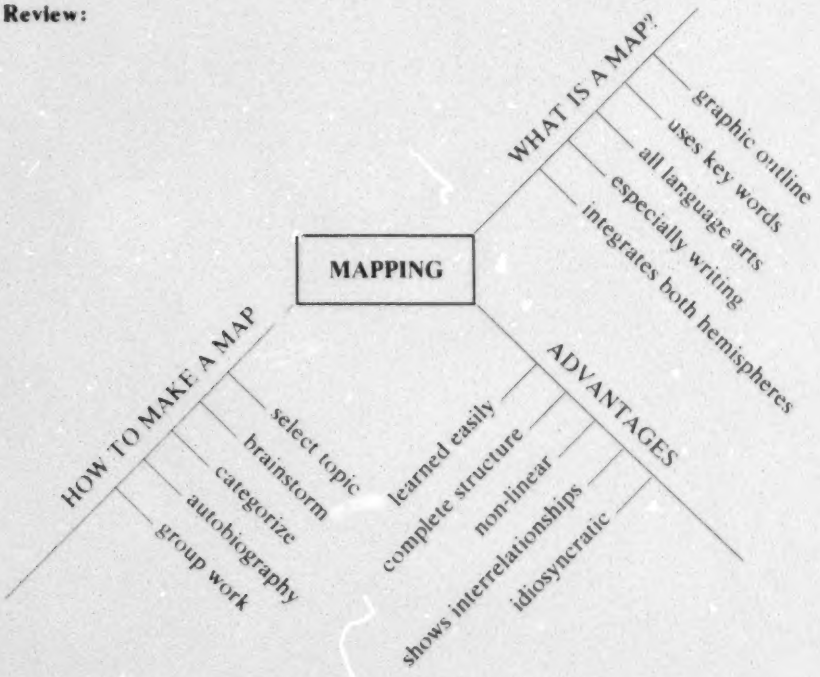


Figure 9
Map for an Autobiography

Group Work and Mapping

It is often useful, in introducing mapping to students, to permit them to work in small groups of two to four. Mapping gives students opportunities to share their thoughts and knowledge. Through group work students become less egocentric because they are writing for and getting information from an audience. The students work through their first drafts and revisions in groups before the teacher reads the papers. Because a map is visual it is easy to share, and students find maps easy to talk from when giving oral presentations.

Review:



THE USES OF MAPPING

There are three principal uses of mapping: mapping for composition, for notetaking, and for comprehension.

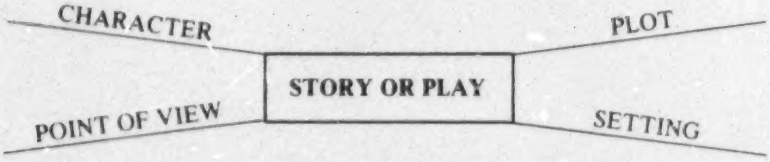
Mapping for Composition: How to Compose an Essay or Story

When students map for a composition, they read about their subject if they need information, brainstorm, and categorize words and phrases, discarding unneeded words. After students have completed the first steps,

they map their information to indicate primary, secondary, and tertiary ideas; then they use their maps as outlines for writing. When they have written their essays and checked them in small groups, they can remap them to see and to evaluate the complete structure.

Mapping a Short Story or Play

Students may work in pairs to develop short stories or plays, using a map to facilitate the organization. The map helps students focus on the central theme and its relationships to plot, characters, setting, and point of view.



All students think about what they are going to write and begin selecting significant details for their maps. They each tell their stories to a partner and revise the maps as they proceed. In the example above, the map is a beginning; it is adjusted as the writers make discoveries about their subjects. A map can also be made when the story is complete to illustrate the story's unity. If parts of the story do not fit into the map, the students know there is a need for revision. When the story is completed, the students make copies for their group members, and the students follow teacher guidelines for revising. After a final revision, students prepare the papers for publication in the classroom library or tape them for the rest of the class.

Maps and Book Reports: Using a Mobile Map

Students may be asked to map a story or novel they have read and turn their map into a mobile using key words to describe character, setting, theme, and their personal evaluation of a book. These mobiles hang around the room where other students can "read" them; students may also use their mobiles to illustrate brief oral reports. These activities encourage students to share their books with others and to learn what others are reading. Students may also use large butcher paper or poster paper to make maps for the same purpose.

Once students can map stories, the teacher may want to keep a "map mobile" with hooks so that items can be added or removed. The teacher may add articles to the mobile to stimulate new speaking or writing assignments. Students may want to get into the act and should be allowed

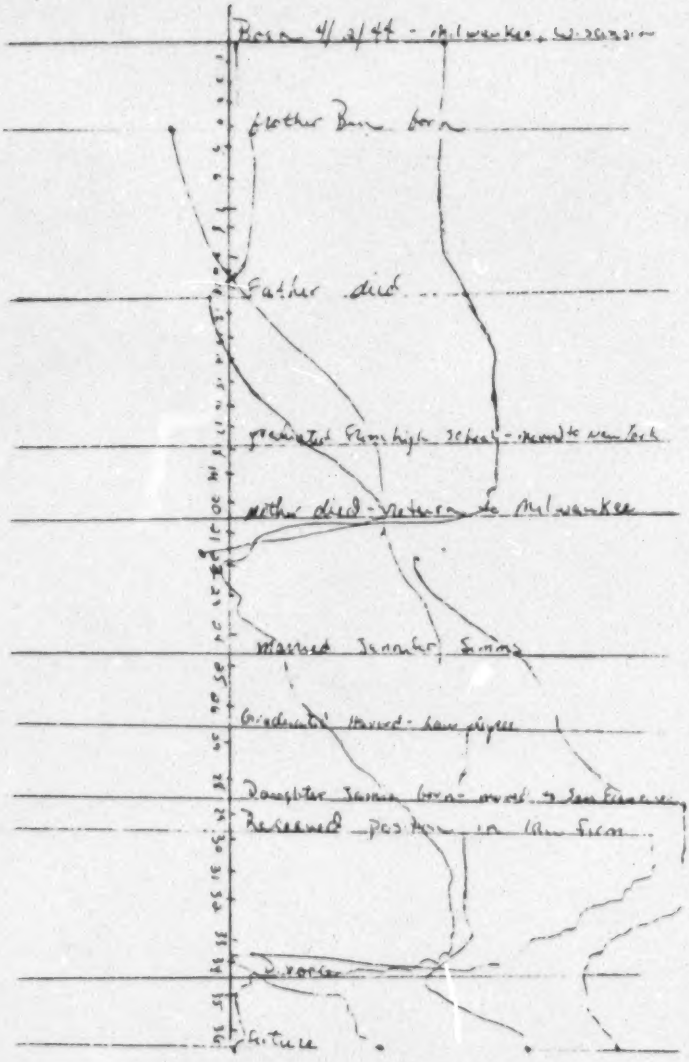

Born 4/2/44 - Milwaukee, Wisconsin
Brother Ben born
Father died
graduated from high school - moved to new York
mother died - returned to Milwaukee
Married Jennifer Simms
graduated Harvard Law School
Daughter Jessica born - moved to San Francisco
Received partnership in law firm
Divorced
future

Figure 10
Mapping a Short Story

This map, by a twelfth-grade student, is the "lifeline" of the projected main character for a short story. After constructing the lifeline, the student focused on a crisis as the primary element of the story, using the other incidents as background information for the author. (By Kathy Sabo, Alameda High School, Alameda, California.)

to bring their own articles for the mobile. Students may also use this three dimensional map to make extemporaneous speeches based on the articles on the mobile or to write group, partner, or individual stories.

The map below (Figure 11), by a fifteen year-old student, was created in the form of a mobile for use by a teacher of elementary children to facilitate oral composition. Children use the mobile to remind them of the important parts of the story as they tell it to their classmates. Later the students make personal maps to illustrate their own oral book reports or stories.

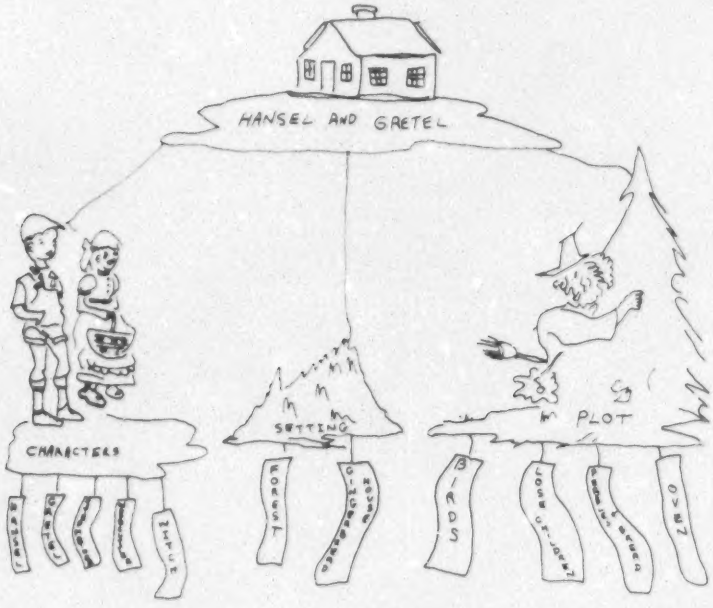


Figure 11
"Hansel and Gretel"
A Mobile Map for Oral Composition

Mapping a Research Paper

Many students merely copy information from encyclopedia articles for research papers because they don't know how to paraphrase or get the main idea of an article. Mapping can help students overcome these deficiencies by forcing them to read for key words and ideas.

Students first brainstorm to generate words about a subject, categorize their words, and begin to arrange them in a map. Following this exercise they go to the library to get more information on the subject, or the teacher may distribute an article to the entire class. Students map this article

and rely only on their maps to recall information they want to use for their papers. After practicing with this article, students should have a good idea of how to cull information from primary and secondary sources.

The following paper by a nine-year-old girl is a good example of what can happen when a map is used to do a research paper, and of what can happen when a map is not used. The girl mapped the first parts of her paper, but neglected to map the last part. The result is original writing in the first part of the paper, followed by copied polysyllabic words which were incomprehensible to the girl. The mapped part of her essay is clear and original and the unmapped part is simply copied.

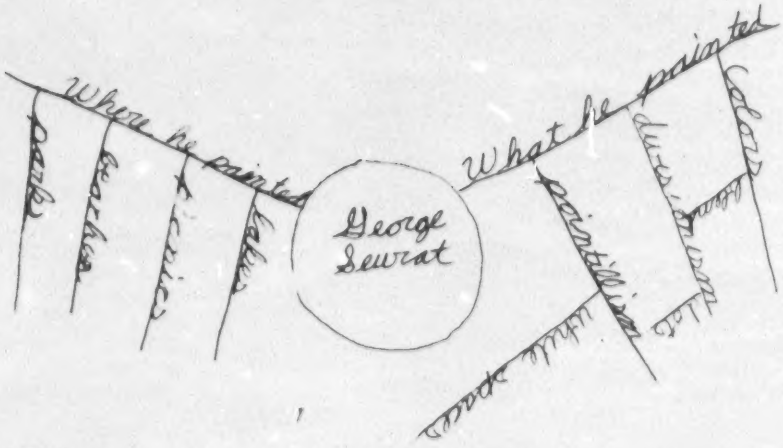


Figure 12

This part of Jenny's paper was mapped first:

> George Seurat did not paint pointillism, he called his painting divisionism and it often got mixed up with pointillism. Pointillism leaves white sections on the canvas. And George Seurat painted with out leaving spaces.
>
> In his pictures he uses very many colors. Especially in his sky, here are the colors he uses: green, blue, light blue, white, gray. But all the different colors blend together to make one color.
>
> He paints of outdoor places and at the places the people are having fun. Here are the places he paints, parks, beaches, picnics and lakes. You see in his pictures people sailing, people strolling, children bouncing balls and holding their mother's hand, and people with their pets, people in shade under their umbrellas, people fishing and canoeing.

This is the part of the paper which Jenny did not map:

> Impressionist art is natural and direct. Seurat's paintings are stiff, and figures seem immovable.
>
> In the painting Courbevore Bridge the striking power of colors based on the contrast of tones is sustained by a pattern of aspiring verticals broken only by the hazy, distant horizontal of the bridge and the dark diagonal of the riverbank.

The last paragraph above was copied directly out of the encyclopedia and is incomprehensible to the girl who wrote it. Fortunately, she ended in her own words:

> I think Georges Seurat's paintings are good because of the colors he uses and the way he uses them.
>
> George Seurat died of diptheria at the age of 31. George Seurat knew a lot about dots and now so do you.
>
> —Jenny, Age 9

Silent Brainstorming, Mapping, and Writing

This entire exercise is done silently. As students come into class and settle down, the teacher says nothing. He begins by writing a word or phrase on the board such as "I love to write, I just can't stand the paperwork," then hands the piece of chalk to a student who writes a comment on the board and hands the chalk to another student. If the teacher is not sure the students will catch on, he may want to tell one or two students before class so they can help get things started. The class spends the whole period filling the blackboard with comments; the teacher may want several pieces of chalk for this so more than one person can write at a time. Some students may get into silent dialogues.

The sayings and words are left on the board for the next day when students will brainstorm, map, and write short stories, dramas, or essays based on their selections. Students then share these with the class.

Other Possibilities

- Provide groups with a map with the spaces for who, what, when, where, and why filled in with key words for a published story or essay. Groups write a story based on the map, compare the group stories, and finally, read the original published version. Because mapping uses only key words or phrases, groups have great latitude when creating their stories or essays. This activity shows students how to map for their stories as well as how to map to comprehend another's story.
- Show students a mounted picture or a picture on a transparency and

tell them to map a story based on the picture. Students then tell their stories orally or in writing.

- An activity for group composition is to have small groups responsible for each part of a short story: who, what, when, where, and why. When each group has mapped and written its part of the story, the sections are combined and read to the entire class. These stories are fun and can be repeated so each group has a chance to write each of the five aspects of a story.
- A map can illustrate the form of a short story or novel before students read or write. Use a large map to illustrate the elements of a tall tale, legend, or myth, for instance, before assigning students to write one.
- Using a map filled in with pictures rather than words, students write a story or essay basing the primary and secondary ideas on the pictures. These pictures help students to create short stories, essays, or poems.
- Students can write a biography or autobiography by using the map form, hanging pictures on a mobile or glueing them to butcher paper. The central picture illustrates their controlling idea, the extensions illustrate secondary and tertiary ideas. They can use pictures of themselves to write an autobiography, pictures of historical figures for a biography, or randomly selected interesting pictures to create a fictional character or mythological figure. In each case students share their stories.
- Have students map a television program or film in preparation for an oral or written report. It is nearly impossible to illustrate the relationships of characters in an outline but relatively simple with a map.
- Orally or in writing, have students compare and contrast a film such as "An Occurrence at Owl Creek Bridge" with the original short story by having students map both. While it is inappropriate to ask students to outline a film because they would miss much in this visual medium, they can map without fear of missing key images because mapping requires so little writing or concentrating on the paper.
- With half the class blindfolded and half with cotton in their ears, take the class for a walk. Those with cotton help the blindfolded ones follow the teacher. After the walk the class is divided into "blind" students and "deaf" students; each group brainstorms about their experiences on the group walk, maps these experiences, and writes a sensory monologue to be shared and compared in small groups and with the entire class. This process gives students a chance to learn about experiential differences and points of view in writing.

Maps for Composing by Professional Authors and Teachers

Figures 13, 14, and 15 below are examples of the use of mapping as an aid to composing by adult professionals. Tony Buzan, writing in *Use Both Sides Of Your Brain* about the use of mapping as a tool for notetaking and reading comprehension, mapped each chapter of his book to illustrate the process for his readers. Douglas Hofstadter apparently mapped the structure of his immensely complex *Gödel, Escher, Bach*. The map (his term is "semantic network") in Figure 14 is "a tiny portion" of his map for the book. The map in Figure 15 was created by fifth grade teacher Mark Stephenson to aid his composing of an integrated thematic unit for his class.

Mapping and Notetaking

Though some teachers give students lectures on notetaking coupled with a few practical experiences, it is an area overlooked by many. On many college campuses private companies sell students notes on teachers' lectures, notes which will be of little help to most students. Research indicates that students who take their own notes in outline form remember more than students who have the lecturer's own notes. More importantly, research shows that students who map lectures remember fifty percent more than students who outline lectures (Russell, 1979). In their college

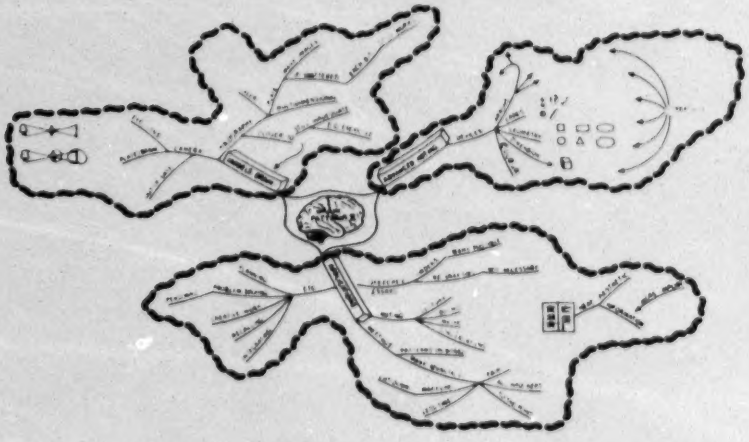


Figure 13
"Brain Patterns II"
Map for a Chapter of *Use Both Sides of Your Brain* by Tony Buzan.
(Reprinted with the permission of the publisher, E. P. Dutton & Co., Inc.)

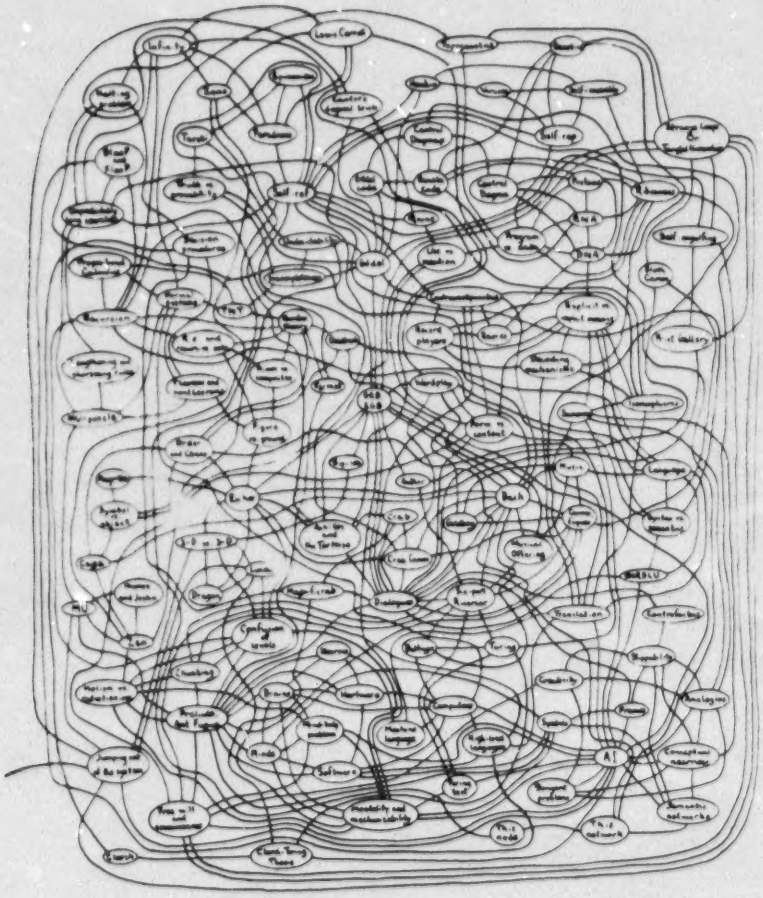


Figure 14

"A tiny portion of the author's 'semantic network'" used by Douglas Hofstadter to plan his Pulitzer Prize winning book *Gödel, Escher, Bach.*
(Reprinted by permission of the publisher, Basic Books, Inc.)

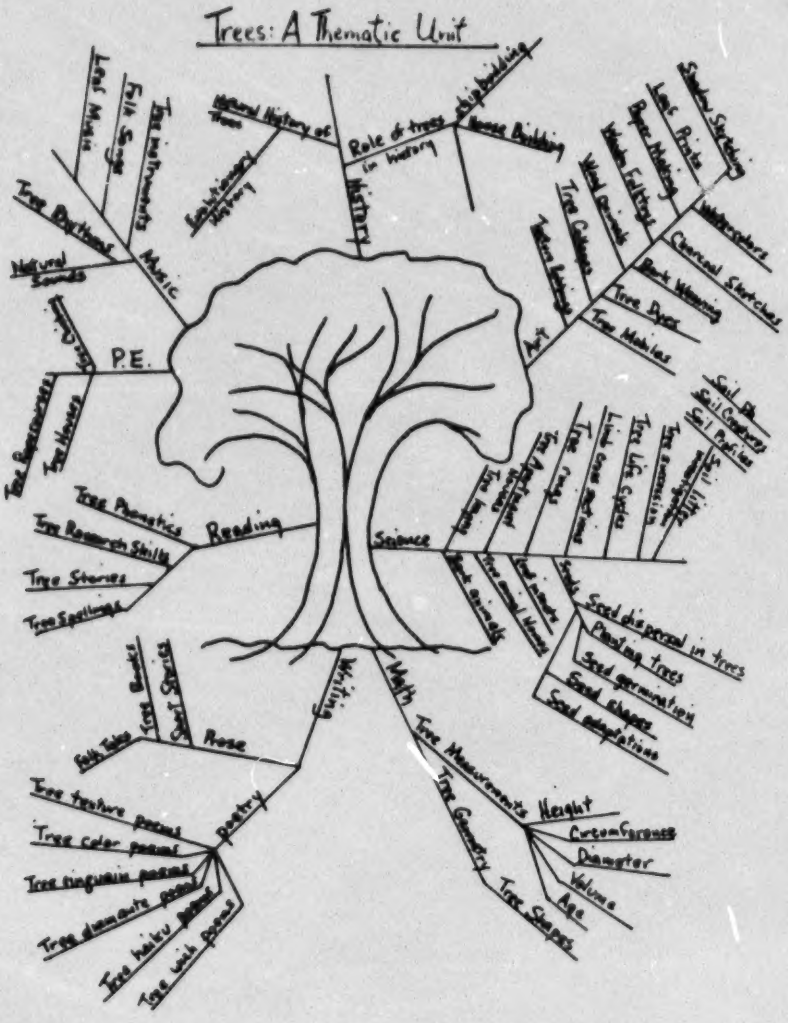


Figure 15

This map, by Mark Stephenson, fifth grade teacher at Mary Farmer Elementary School, Benicia, California, was prepared as a part of the planning for a thematic unit integrating all school subjects.

careers most students probably do more writing in connection with lectures than with anything else; because of the research we now have on mapping, it is extremely important for teachers to teach this skill. Of course, using mapping to take notes also means that every time a student maps a lecture he is also getting a lesson in composition.

To teach mapping as a notetaking skill, teachers may begin by providing students with blank map forms or maps with some key words filled in based on a lecture or short talk they will give. Following the lecture, students may compare maps. Students then move on to creating the form of the map themselves as they listen to lectures.

The following map (Figure 16) illustrates the way a fifteen-year-old girl organized a lecture on phrases, clauses, and sentence types. Note that the map not only organizes the lecture for the student, but also allows the teacher to check the student's comprehension with a quick glance.

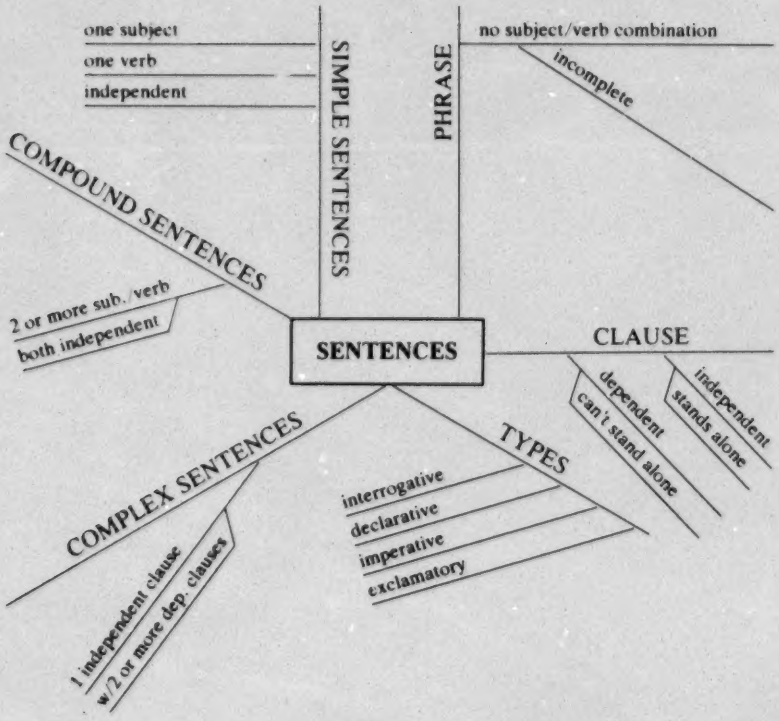


Figure 16

I made the map below during a three hour lecture in a graduate course in statistics. Because the map required a reconstruction of the lecture, the details are easy to remember.

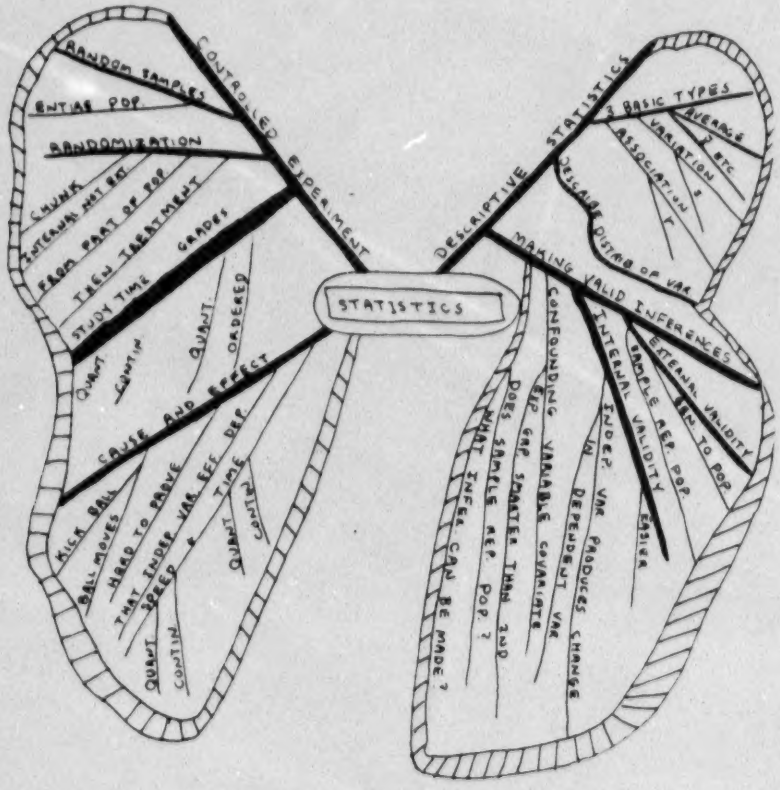


Figure 17
"Statistics"
Lecture Map, Owen Boyle

Based on a Lecture by Tony Vernon, University of California, Berkeley

Much of the writing students do is based on the reading they have done for a class. Because mapping can illustrate the whole structure of a story, essay, or chapter of a text, revealing relationships which might otherwise go unnoticed, it is particularly useful for students to know how to apply this technique. The maps on the following pages illustrate the variety of forms such maps may take.

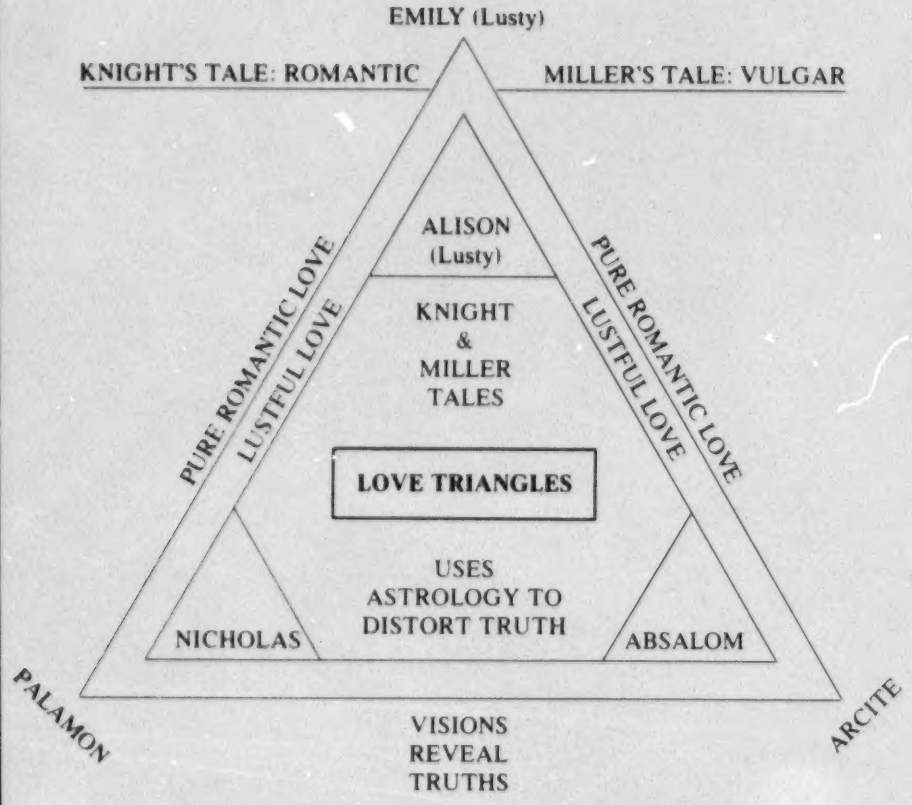


Figure 18
Map comparing Chaucer's "Knight's Tale" and "Miller's Tale"

Figure 18 is the first attempt by a student who had been given a twenty minute introduction to mapping. This student's essay follows, showing the effect of mapping on form and content. This sophisticated paper on the relationship between Chaucer's "Knight's Tale" and "Miller's Tale," written by a fifteen-year-old girl, was obviously aided by the mapping process.

COMPARISON OF KNIGHT'S TALE AND MILLER'S TALE

After the knight finished his beautiful (and overlong) tale, everyone agreed it was noble. The drunken miller, however, thought he could match any tale of the knight's. At first, the two tales seem to be totally opposite; but, after a closer look one can find many similarities.

Both tales involve a love triangle, where two men seek the love of the same woman and fight for her. In *The Knight's Tale* the characters are Palamon, Arcite, and Emily. In *The Miller's Tale* the characters are Absalom, Nicholas, and Alison. The knight's triangle is very pure and romantic. The miller's triangle is somewhat raunchier, such as Nicholas had already bedded Alison while Absalom was still begging for her love.

Visions are used in both tales. Palamon, Arcite, and Emily pray to the gods in an effort to guide their destiny, and Emily sees a vision of the goddess Diana. In the miller's tale visions are mocked. Nicholas is also using visions in an effort to guide his destiny or his and Alison's. He pretends to have seen a vision from the gods, telling him a great flood is coming, to trick the carpenter into hiding in a barrel in anticipation of the flood.

Destiny solved the differences between Palamon and Arcite. Both men won, even though Arcite died; he won Emily's hand in marriage and then had an accident. As he lay dying he gave Emily to Palamon. So it was in the miller's tale; everyone "won," so to speak. Absalom has kissed an ass, Nicholas' rear end is severely burned, and the carpenter receives a broken arm. Alison and Emily just sort of stood by and got the best of both deals.

The miller took almost every detail of the knight's tale and twisted them into something vulgar so that they seem to be very dissimilar. However, after careful scrutiny, many likenesses can be found. As a matter of fact, both stories parallel each other.

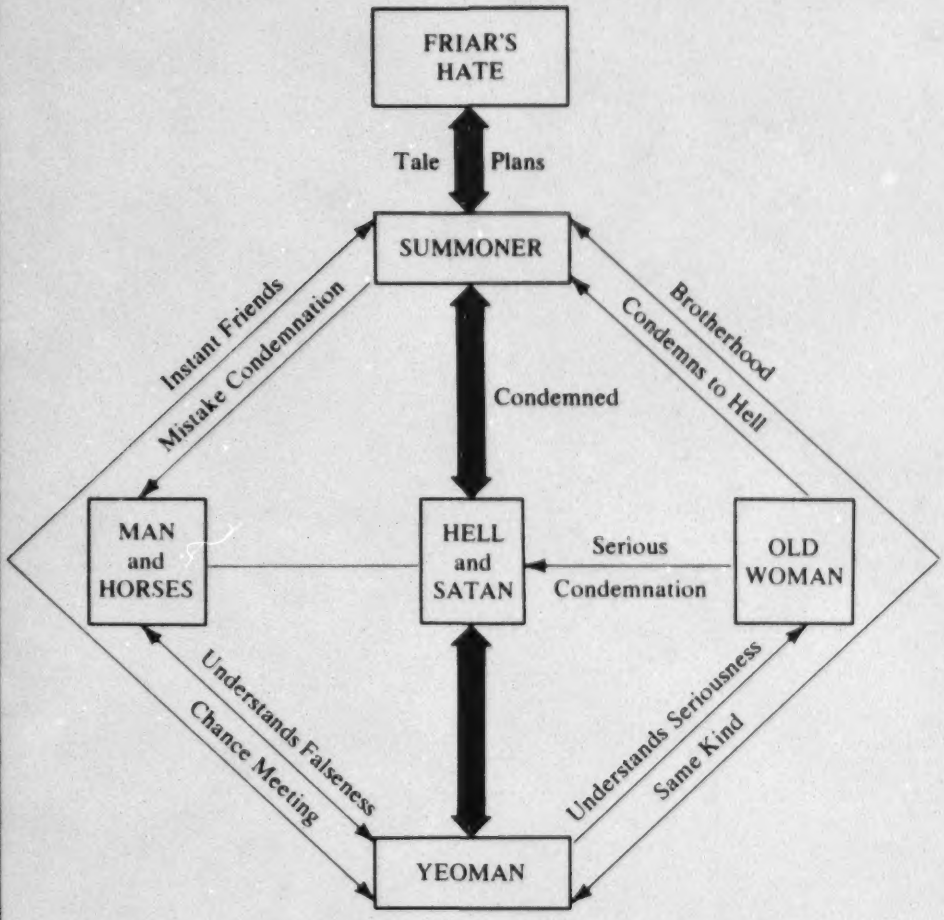


Figure 19
Map Based on Chaucer's "The Summoner's Tale"

A fifteen-year-old student made the map above (Figure 19) in preparation for an essay on "The Summoner's Tale." Mapping the story made it possible for him to visualize the relationships and discover a thesis for his essay.

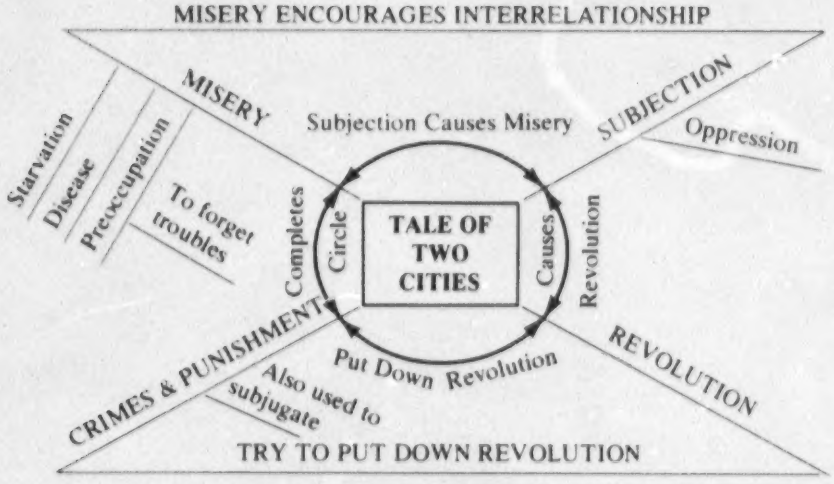


Figure 20
Map for an Essay on Dickens' *A Tale of Two Cities*

A part of the paper on the map above (Figure 20) by a fifteen-year-old student is included below. Note that the map worked for the student as a prewriting activity which did not restrict his discoveries about his subject.

> "A Tale of Two Cities" compares the cultures as well as the people, of two great 16th century cities, Paris and London, and the oppression of both the French and English peasants. This oppression typifies the power of the aristocracy at the time of these decadent societies. These societies not only permitted, but also encouraged the wrongs against the common people. Charles Dickens exemplifies this air of oppression, and mixes it with anger, fear, and a general mood of revolution, in an attempt to recreate the attitudes of the 16th century cities.
>
> In the opening half of the book the constant fears of travelers for highwaymen, and the general distrust among fellow travelers typifies the unrest among the people, and the hatred and fear of those belonging to the ruling class. The English were also oppressed by the aristocracy along with being heavily taxed. Although the peoples starved, suffered, and died, the cities continued to thrive for the aristocracy.
>
> The fears in the two cities were also widespread throughout the country of which they were part. The fear of being falsely accused of a national felony and the gruesome punishment was a real fear, however, it did not outweight the fear of starvation and disease.

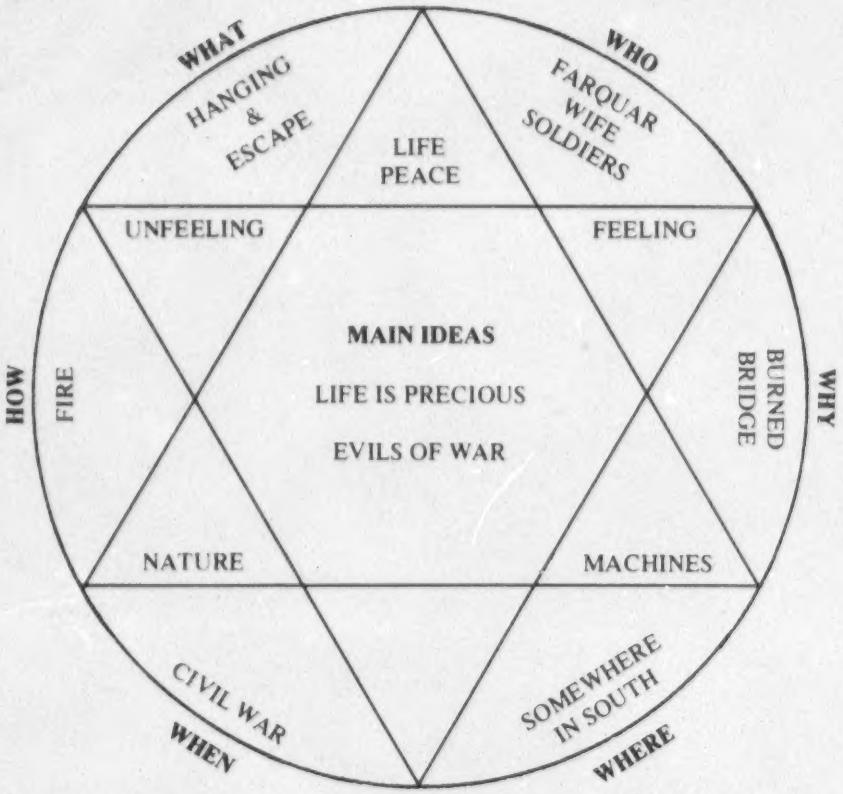


Figure 24
Mandala Map of "An Occurrence at Owl Creek Bridge"
by Ambrose Bierce

The mandala above (Figure 24) illustrates how a student used this pattern to help her understand a complicated short story. The more creative students become in determining the pattern they will use to illustrate a story, the more likely will they be able to comprehend and write about the story.

CONCLUSION

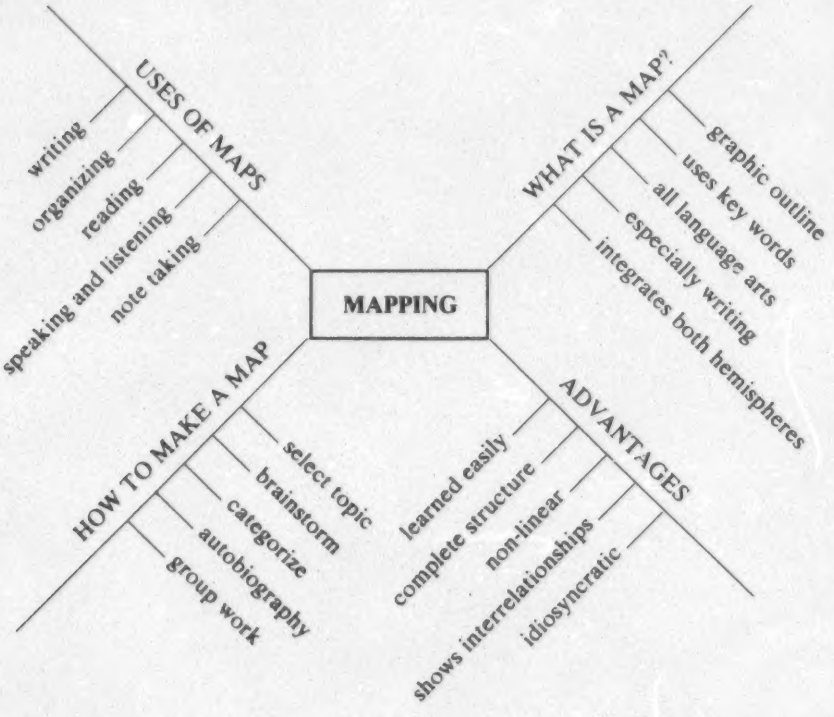
Mapping is a powerful new tool used in writing, reading, listening, and speaking. In the last few years mapping has been used by professional writers such as Robert Pirsig, *Zen and the Art of Motorcycle Maintenance*,

Douglas Hofstadter, *Gödel, Escher, Bach*, and Peter Russell, *The Brain Book*, and it has been used by educators in England and the United States. It is being used with students of varying intellectual capacities in all grade levels. Mapping is one of the tools which all teachers should have in their repertoires.

If we want students to generate words easily, if we want to help students organize their essays or stories efficiently, if we want students to write coherently, then mapping is one of the tools we will teach. As a prewriting activity mapping helps students start writing easily, as a shaping activity mapping helps students form their ideas, as a holistic activity mapping helps thinkers synthesize ideas. Because it takes advantage of our verbal and visual abilities, mapping adds a new dimension and power to all language activities. This simple visual technique, taught in just a few minutes, can help all our students write better.

Using a Map to Review

If you have mapped this essay, you will find you can recall it easily. The map below illustrates the potential of mapping as a comprehension activity. Test your recall of the essay by using the map below.



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BAY AREA WRITING PROJECT

CURRICULUM PUBLICATIONS

1. *The California High School Proficiency Examination: Evaluating the Writing Samples* by Ruby S. Bernstein and Bernard R. Tanner
   The authors explain the holistic procedures used in evaluating the writing samples, including student papers representing the range of student responses.

2. *Independent Study and Writing* by Sarah Dandridge, John Harter, Rob Kessler, Miles Myers and Susan Thomas
   Addressed to teachers, parents, and students, this booklet describes various independent study programs in grades kindergarten through twelve, and focuses on writing as a way for students to integrate their learning in such a program.

3. *Formative Writing: Writing to Assist Learning in All Subject Areas* by Virginia Draper
   Draper shows how teachers in all curriculum areas can use writing to enhance student learning of subject matter.

4. *Come On Out— The War's Over or Making Peace with English 1-A* by Roger Mueller
   Describes the way in which the author's experience with the Bay Area Writing Project was translated into effective ideas for organizing and teaching a writing course.

OUT OF PRINT

5. *Working Out Ideas: Predication and Other Uses of Language* by Josephine Miles
   This collection of essays, all on the theme of "the power of students to compose their thoughts and the power of teaching to help them," spans the years of Miles's thinking, teaching and inspiring of teachers.

6. *The Tutor and the Writing Student: A Case Study* by Jerry Herman
   Following the progress of a single student as she works one-to-one with a tutor in the writing center at Laney College, Herman shows how to help the student recognize and use the knowledge she already possesses to improve her skills.

7. *Expectation and Cohesion* by Gordon Pradl
   Pradl explicates some of the basic principles of cohesion in writing and suggests exercises which will help students discover these principles.

8. *An experiment in Encouraging Fluency* by Miriam Ylvisaker
   With pre- and post-writing samples, Ylvisaker illustrates the results of her experiment in using a student-centered Writing Workshop class to improve the fluency of her reluctant writers.

9. *Writing for the Inexperienced Writer: Fluency-Shape-Correctness* by Marlene Griffith
   Through the work of three beginning writers in a college writing center, Griffith describes the evolving relationships between fluency and shape, and fluency and correctness in writing.

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11. *Writing Class: Teacher and Students Writing Together* by Dick Friss
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12. *Using Student Writing Response Groups in the Classroom* by Mary K. Healy
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(Continued inside back cover).

13. *Sequences in Writing, Grades K-12* by Gail Siegel, Lynda Chittenden, Jean Jensen and Jan Wall
This book presents four sequences for teaching writing at four different levels, all treating writing as a process with several steps, all based on the sequence of development of individual students.

14. *Balancing the Hemispheres: Brain Research and the Teaching of Writing* by Gabriele Lusser Rico and Mary Frances Claggett
The authors survey the literature on right- and left-hemisphere specialization and analyze the implications of this research for specific classroom activities in a balanced writing curriculum.

15. *Mapping the Writing Journey* by Marilyn Hanf Buckley and Owen Boyle
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